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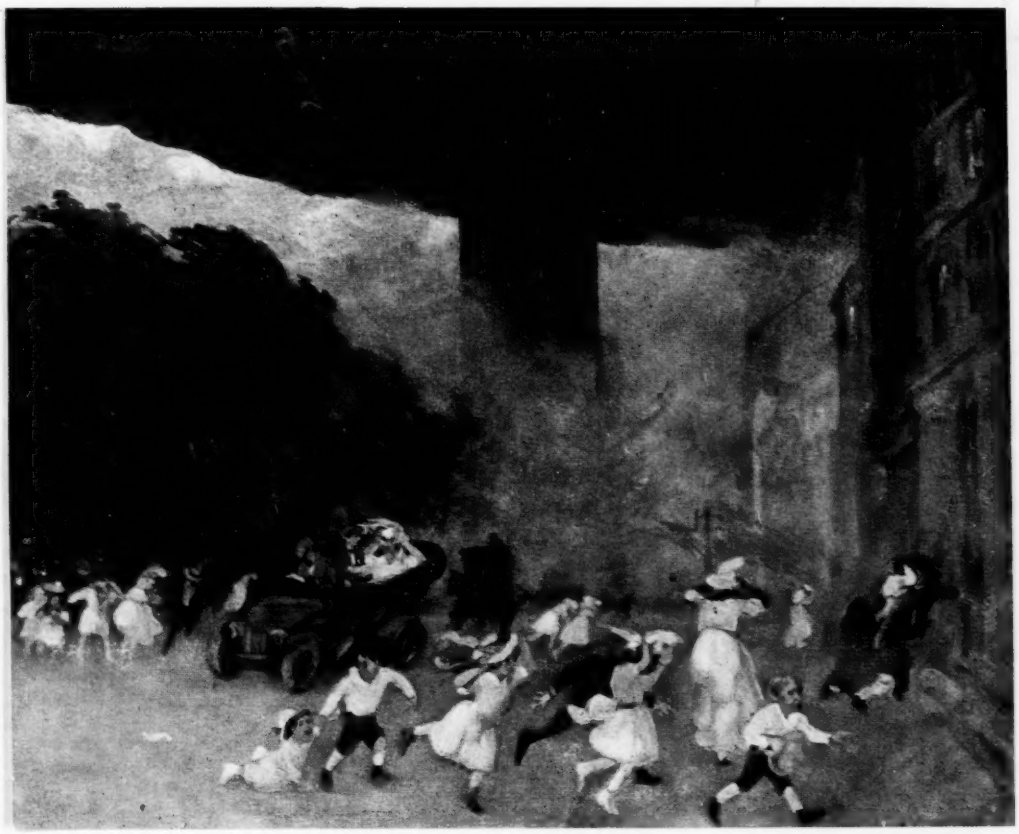
MAIN CURRENTS

IN MODERN THOUGHT



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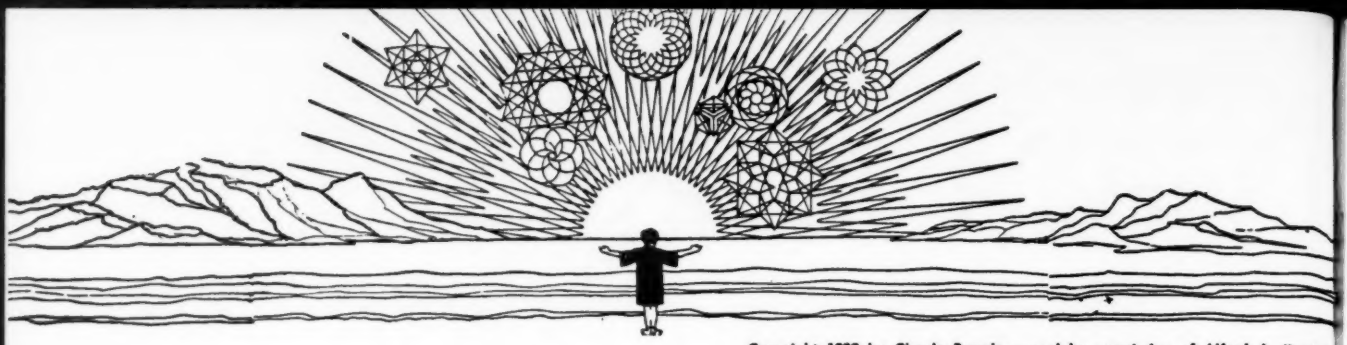

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MAIN CURRENTS
IN MODERN THOUGHT

A cooperative journal to promote the free association of those working toward the integration of all knowledge through the study of the whole of things, Nature, Man, and Society, assuming the universe to be one, dependable, intelligible, harmonious.

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MAIN CURRENTS IN MODERN THOUGHT is published to call attention to significant contributions to learning currently being made in the multiple fields, relating these advances to each other and to classical and contemporary views of Eastern, European and American thinkers. It is designed to save time for the reader by providing a vantage-ground from which the whole world of knowledge may be surveyed and kept in proportion as it moves toward integration. Its editors assume that the principles of art, the universals of philosophy, the laws of Nature and Man as formulated by science, and the truths of comparative religion, can be orchestrated into a harmonic, meaningful, ethical body of teachings which can and should be made the central core of curricular study in the educative process at all levels. Contributors to MAIN CURRENTS enjoy full liberty of opinion and expression in these pages.

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EDUCATING THE GENERALIST

Joseph R. Royce

A Prime Task for Contemporary Society is to Educate the Whole Man

DIFFERENT societies cultivate the minds of men in a wide variety of ways, but the formal or institutional way they go about this is in every case via their schools and colleges. Perhaps we shall simply have to accept the fact that by the time each citizen comes to a university, he has already been highly socialized, and thereby encapsulated, by the explicit and implicit norms of the culture, and that there is little we can do to change him. This may, in fact, be true, but we can at least raise the question whether higher education contributes to hardening the cover of the capsule surrounding the student, or whether it is attempting to break the shell. I fear the answer is that the current situation in higher education is working hand in glove with the other cultural forces in the direction of encapsulation. I think the reason stems primarily from our overconcern with technical skills and "specialization" as opposed to liberal ideas and "generalization." The need for specialist education has been forced upon us and we all understand and recognize this need as due primarily to the fantastic accumulation of knowledge which has accrued during the past three or four centuries. The degree of detailed information which has piled up in each of the specialized areas of knowledge is staggering! The number of technical journals published today runs high into the thousands. There are, for example, over 500 journals which are closely enough related to psychology that they are searched continuously for inclusion in *Psychological Abstracts,* a journal which provides the only possible solution to keeping up with the psychological literature of the world. Similar journals exist in other major disciplines of knowledge. Books are published so rapidly that expanding university libraries are ready for further expansion within a few months of the time they move into the added wings. Microfilm and reading-projecter machines are now standard library equipment. Most doctoral candidates take five to eight years to get their degrees rather than three to five. One reason they take so long is that new requirements have simply been added to old ones as new knowledge and new skills have been developed. While all this has been going on the professors in the land have been busily engaged in proliferating courses for the already overfed cafeteria college catalogue. As the professor gets deeper and deeper into his particular specialty (e.g., say Chaucer) within the area of his field (literature), he requires that more and more detailed seminars be offered on the subject so that, whereas in bygone days we might have had one course on 14th century literature, we now have, not only a course on Chaucer, but perhaps Chaucer I and Chaucer II. Thus, in spite of the obvious sarcasm, in defense of specialization it seems fair to say that the overload of knowledge is now so great that specialists are needed in order to probe deeper into the mysteries of life. And, in fact, it would not be inaccurate to say that the demands for proficiency in the various compartments of knowledge are so great that they simply require all the energy a serious student can bring to his chosen specialty.

GRANTING that the specialist, as scholar, is needed, and that he makes important contributions to advancing the frontiers of knowledge, we may now raise the question of the impact of such narrow education on the personality of the specialist. For we can easily see that the specialist may well provide us with a deeper awareness of a particular aspect of outer reality, but that such awareness, in and of itself, adds little or nothing to inner reality. Stated another way, to the extent that the super-specialist of today's world carries this way of doing things over into his personal life, he remains a specialist in the art of living as well as a specialist in making a living. This applies to the specialist scholar as well as the specialist in business or industry. For, in Jungian terms, such a person is not individuating — he remains with his dominant function, and never brings his inferior function into consciousness. Such lack of self-awareness means, for example, that there is a very severe unconscious tension between the highly developed primary function and the underdeveloped inferior function. The difference in potential is very great indeed, and as long as such an enormous polarity continues, it will evoke a compensating response from the unconscious. Jung uses the analogy of a difference in electrical potential, and implies that greater psychic energy flows

in such a situation, just as it does in an electrical field. The implication of Jungian thought on this issue is that the above described sequence will occur even if the specialist is a great scientist or a great artist. No matter how meaningful the contribution to our understanding of outer reality, that person's inner reality will suffer to the extent that he ignores the totality of his psyche.

A similar concern for bringing about a coalescence of opposites lies at the core of Eastern thought; however, they pursue the goal in a typically intuitive fashion. In this connection the Zen training technique known as the koan is of particular relevance. The koan is a specialized question-and-answer tactic which involves the presentation of a paradoxical question, expression, or action by the master for a student meditation and response. Koans are of great variety in terms of paradox, ambiguity, and specific purpose. In toto, they are concerned with keeping the psyche open, not just the intellect, but more importantly, the senses, feelings, and intuitions as well. It is a technique designed to force the individual out of his well-worn ruts into new ways of seeing, into a broader awareness. To manufacture a too simple example of the koan tactic, let us suppose that one of the students asks the master "What is the Buddha nature?" The master might reply with some such remark as "worm!", "you!", or he might simply point to a blade of grass or a mountain top. As the student progresses he may be presented with something essentially unanswerable, such as "What is the sound of one hand?" or "A girl is crossing the street. Is she the younger or the older sister?" One goal of such maneuvering is to coerce an experience of the limitations of the intellect, and to force the individual into himself and his inner resources. A Westerner would say it represents a tapping of the unconscious. In other words, more emotional and irrational responses well up to the surface, and a greater feeling of vitality follows the deep frustration. The koan is particularly designed to bring out a naive or phenomenological awareness, devoid of abstract names and labels — the stress is on the "eternal now" and the "suchness" of experience. "Such awareness is a lively attention to one's direct experience, to the world as immediately sensed, so as not to be misled by names and labels. [Samadhi] . . . is the perfection of the . . . pure experience, pure awareness, wherein there is no longer the dualism of the knower and the known." [2]

As the student develops, the koans become more difficult. The master may check a monk's awareness by some such question as "When the bath-water flows down the drain, does it turn clockwise or counter-clockwise?" Or, he may require that a certain koan be responded to very indirectly, or without a verbal response. The highly adaptive, but non-verbal response to a paradoxical situation is highly regarded. For example, the Zen literature[3] reports the story of how Po-chang, a Zen master, selected a new head master. He called all the monks together and set a pitcher before them, saying: "Without calling it a pitcher, tell me what it is." One of the monks said, "You couldn't call it a piece of wood." At this the monastery cook kicked the pitcher over and walked away. He was put in charge of the monastery. It should be pointed out that the first monk's response was quite good, but it was only correct in the negative sense. The second monk pointed directly to the essence of the matter by his immediate, decisive, and insightful action. The spirit of Zen is to point to reality, for it teaches that the real in any ultimate sense is ineffable, and therefor incapable of being taken in by words and concepts. I see the koans as a graduated series of existential shock treatments, miniatures of life's frustrations and ambiguities, placed in the path of the maturing monk, as intuitive practice with the demands of life. It is a tactic for forcing the individual out of his skin. It is a way of saying that life is, at best, paradoxical, and that schemes, systems and philosophies are fine as far as they go, but they cannot possibly be equated with life. Thus, Zen itself must not be seen as a philosophy or religion, but rather, as a way of liberation or unencapsulation. More specifically, in terms of the present context, perhaps the Western mind will be able to see a way to borrow a page from Eastern wisdom on how to educate away from specialism and narrowness, particularly as it relates to self-awareness.

CLEARLY, the problem of how to educate in the 20th century calls for serious review — review of what the content should be, the manner in which such content should be organized, and the tactics to be used in conveying it. This is a situation where the application of the principles of gestalt psychology would obviously be helpful; for we need to refocus on the problem, that is, perceive it in terms of the present highly congested state of affairs, not in the simpler terms of 500, 100, or even 50 years ago. Some of our assumptions will need re-examining. Certainly the unchecked movement toward detail, over-specialization, and trivia must be stopped. The argument here is not to eliminate specialists, but rather, to move in the direction of producing educated specialists rather than merely technical specialists, and to produce generalists as well, that is, people who profess no particular specialty, but whose purpose in life will be regarded as legitimate and serious rather than that of the dilettante. Unfortunately the current scene, being one which reflects an essentially

[2] Alan Watts, *The Way of Zen*, New York: Pantheon Books, 1957, p. 52.

[3] For a brief summary, see Watts, p. 129.

encapsulated outlook, is one in which only the specialist can speak or do with authority and legitimacy. He who aspires for a truly generalist orientation toward life, he who desires a liberal education in the tradition of the early liberal arts degree, will find that there is no occupational niche for people so educated.

About five years ago American industry did a great deal of talking about the need for liberally educated college graduates, sent out literature to this effect, and sent representatives to a variety of college-industry conferences presumably by way of promoting this concern. Those of us closely associated with American higher education noted, however, that when it came to the actual hiring it was the narrowly but technically tooled up specialist in economics or engineering who got the job. When the chips are down the attitude is that a broad education is nice, but irrelevant to getting the job done. What job? Turning out toilet seats, selling automobiles, or building rockets to send to the moon. The basic attitude toward the Renaissance man is that he belongs in the Renaissance, or at best, if he is wealthy it is all right for him to learn about such esoteric matters as Shakespeare, art, and architecture, and such useless things as history and philosophy, because it won't be necessary for him to earn a living anyhow. Contemporary education is unfortunately more concerned about earning a living than in living itself. Unfortunately, the educational curriculum at least partially reflects the values of society, and in much of the world today the vocationalism of higher education is forced upon it by the demands of the society in which we live. Thus, in this country, business and industry provide financial support to collegiate institutions primarily in terms of backing practical or applied fields of study.

The so-called backward countries of the East and Africa, in need of scientific and production technicians, send their young people to this country for technical skills which they can use in the solution of practical problems back home. There can, of course, be no objection to meeting these needs. The objection comes in promoting these practical, vocational needs to the exclusion of generalist needs.

Who needs generalists? Perhaps not Minnesota Mining and Machinery or General Motors, although a good case could be made that they, in fact, do need generalists. The point is that humanity needs generalists. It would be too much to expect General Motors to take on generalists when they are needed primarily by humanity, but if we could convince humanity, General Motors would eventually follow suit. Perhaps the best place to start in giving humanity what it needs is with the creative minority — the artists, scientists, and the other creators of our civilization. And the best way to contact the creative minority is through our colleges and universities. In short, then, a practical beginning in answering the question of how to occupationally support the generalists is to provide jobs for them in our institutions of higher learning. Let us provide generalist education for generalists who will begin by teaching others to become generalists. What would this generalist education be like, and what effect might it have? This idea is so new that it goes back hundreds of years to the original conception of a liberally educated man, but in the wake of industrialization, urbanization, "organization men," and specialization of society, we simply lost the ball. How might we retrieve it? My guess is that we can at least move in the right direction by moving away from narrow specialization and vocationalism toward a broad education and the liberal arts. Because of the great forces of fragmentation in contemporary life we need to exert ourselves explicitly toward providing educational situations where integration, both outward and inward, can be maximally fostered. Exactly how this is to be accomplished remains to be seen, but the immediate task is to come to the realization that this is a major problem for contemporary man.

WHILE my experience with integrated-generalist education is necessarily limited and probably biased, I should like to reflect briefly on my four years of involvement with such efforts as one indication of the kind of vital experience which can emerge from this approach. In the year 1955 it was my good fortune to be invited to participate as a Faculty Fellow in a Ford Foundation sponsored experiment in interdisciplinary education. This program, the Intercollegiate Program of Graduate Studies in the Humanities and Social Sciences, is conducted cooperatively by seven liberal arts colleges in southern California.[4] Very briefly, this doctoral level program is concerned with developing breadth of education along with the usual depth. A major feature of this program is the inter-subject seminar. An interdisciplinary seminar might include four or five professors from as many disciplines, plus from ten to twenty students representing a wide variety of fields of study. The diverse members of the seminar come to grips with a general area of inquiry from their special perspectives. For example, in 1955-56 I participated in a seminar called The Nature of Institutions. I was joined in this common search by an economist, a sociologist, a political scientist, and an historian. I served as coordinator of a similar seminar on Science and Civilization, a non-Ford Foundation experimental effort for seniors at the University of Redlands, during the years 1956-1957, and 1958-1959. This seminar involved the combined thinking of a psychologist, a physi-

[4] The seven colleges are as follows: Claremont Graduate School, Claremont Men's College, Occidental College, Pomona College, University of Redlands, Scripps College, and Whittier College.

cist, a chemist, and a sociologist. And during the year 1957-1958 I participated in another intercollegiate interdisciplinary seminar on Standards of Judgment, involving a philosopher, an economist, a professor of literature, and myself as a representative of psychology. It is important that there be diversity in background among both professors and students. For this particular type of seminar it is also extremely important that the student participant have a thorough background in at least one discipline. In other words, we are here discussing a case of generalist-specialist education, as opposed to purely specialist or purely generalist education. It has been commonly referred to among IPGS participants as "the room with a view" kind of education. One's specialty is one's room, the view is gained by exposure to the other disciplines represented in the seminar. Unless a student comes into such a seminar as a specialist, he cannot participate actively and thereby learn optimally. He must be well acquainted with a domain of knowledge so that he can dissect its structure and communicate this to others. We found in our undergraduate seminar on Science and Civilization that students without this kind of background were unable to get the feel of the seminar. They were confused, uncertain, and lost. In short, they did not have the necessary background and maturity to profit from such a high-level effort at synthesis.[5] I might add that several of the undergraduates who participated were from the Able Student Program, a pool of students who are not bound by the usual course requirements, who are, in effect, put on their own. The point is that they represent people of outstanding ability, but they simply lacked the necessary maturity level — they did not yet have a room from which to gain a synthetic view. It is my impression that students below the level of senior could rarely profit from an educational experience of this kind, but that outstanding seniors who are potentially creative people could profit greatly. Our procedure varied considerably, depending upon the participants and the particular seminar, but it essentially involved a formal presentation on the part of either a student or a professor, followed by discussion. It was our experience that the formal presentation was best if it was fairly short, say around 30 minutes, but meaty. It might even be appropriate to say that it was good if it was dogmatic. By this I mean that the leader who opened good discussions was the one who presented a clear and forceful point of view without too much hedging and over-qualifying. The corrections and qualifications usually emerged later in the discussion. Obviously the discussion was of the greatest importance. Here was the real educational value of the seminar, for here is where the opposition and diversity of views came into contact with each other and were resolved. A problem would be kicked back and forth, turned upside down, and looked at from every conceivable relevant and sometimes irrelevant perspective. In the process specific knowledge from a variety of fields was learned, but, more importantly, over a period of time, one began to get the "feel" and the methodology for literature, government, history, or philosophy. After awhile the participant gains real insight as to what "they're trying to get at" in literature, science, or art. And while nobody would expect him to become particularly proficient outside his area of special competence, what finally does emerge is a new awareness, a realization of the validity and power of great art and great science as legitimate approaches to knowledge.

One thing that happens frequently is the best testimony I know for the de-encapsulating effect of such an educational experience, and I suppose it happens with the greatest impact on the professors. An early professorial attitude goes as follows: "This will give me an opportunity to educate my colleagues about my field properly. This will give me a chance to get across to them how much we know and how my field contributes to the advancement of mankind." A later attitude is: "Today I will get an opportunity to learn more about X field of study. It's fantastic how limited we are in dealing with such and such a problem in my field. Perhaps I'll get an insight as to how they go about it in X field today." In short, the early attitude works, and the professor really does teach his colleagues something, but the undertone of arrogance and certainty is lost in the later attitude. The new insights gained as to how alien ways of knowledge go about their business provide such new vistas that very frequently the original room is considerably redecorated. The overwhelming impact of new ways to see, thought based on different assumptions, methodologies foreign to one's nature but relevant to another domain of knowledge, is so great that one almost bursts from the sense of a deeper and broader

[5] The point of high level synthesis brings up another outstanding feature of the IPGS program. The dissertation must also be interdisciplinary in nature. The hard core of it lies within the student's specialty (e.g. comparative literature, philosophy, or political economy), but it must be conceived in such a manner as to lend itself to multi-disciplinary development. Let us briefly consider the first two dissertations which have been completed through the University of Redlands for example. Milton Hunnex, whose area of concentration was philosophy, did a study entitled "Toynbee's idea of etherialization as a criterion of progress" in 1957. This dissertation, with its hard core in the philosophy of history, also involved psychology, sociology, and religion. Richard Palmer, a student of comparative literature, completed a study entitled "A study of existentialism in certain poems by Charles Beaudelaire, R. M. Rilke, and T. S. Eliot" in 1959. After a thorough review of the literature and philosophy of existentialism, Palmer did a detailed literary analysis of the three mentioned existential poets. This included reading Rilke and related works in German and Beaudelaire and related works in French. Such dissertations are meant to tackle broad, evaluative, and important issues. No pretense is made about the dissertation necessarily being an *original* contribution to knowledge. The important point is that it deal with a significant gestalt of knowledge.

sense of reality. The step toward de-encapsulation is, of course, a very real shock; it is quite comparable to the loss one suffers when a loved one dies, or if one is shedding an old religion. But this represents true education! This represents learning where it hurts. When education reaches you where you live, it is real, it is powerful, it carries existential validity with it. This is the kind of education I experienced as a participant in these seminars during the past four years. I can assure you that this involvement represents some of the highest moments of my life, and I have deep-seated doubts as to my willingness to return to the usual way of educating.

THIS is just one program, aimed primarily at the graduate student, and primarily concerned with synthesis. But it opens up a broad avenue of similar possibilities, and it may serve to open our minds to equally valid generalist approaches. I am contemplating a joint offering with a sociologist-anthropologist on The Nature of Man. We are thinking of dropping certain courses listed independently under sociology and psychology and offering one common course instead. Similar collaboration could be done in joint courses in personnel management on the part of economists, psychologists, and sociologists. It would eliminate duplication and make the course more exciting by having three professors in the classroom at the same time. Pomona College is experimenting with a senior level divisional inter-disciplinary course under a grant from the Carnegie Foundation. If the student is majoring in art or music, for example, he would take a one year inter-disciplinary seminar in Fine Arts; if he is a history major, he would take an inter-disciplinary seminar in Social Science; if a physics major, he would take it in Natural Science, and so on.

Efforts at generalist education are not new, and there are many good things to be said in favor of the kind of general education courses which were initiated two decades ago at Columbia and Chicago. What makes the above mentioned courses different from previous efforts is the stress they place on simultaneous multi-disciplinary presentation. To put it another way, professors cannot provide integrated education for students by way of a curriculum or a set of survey lectures. Each student must do the job of integration for himself. But, professors can provide an optimal setting within which the integration is to occur, and it looks as though the inter-disciplinary seminar is one such setting.

The answer to the objection that this is expensive education must be in the affirmative — it is. But so is all really good education, and, in my opinion, it would be silly not to figure out ways to get around the expense. We do so when the problem relates to the production of "hardware" such as bombs, rockets, and sputniks. I assume if we are willing we can also do it when it comes to "headware."

Joseph R. Royce is Professor and Head, Department of Psychology, University of Alberta. The material for this paper is based upon a chapter in his forthcoming book, *The Encapsulated Man.*

INTRODUCTION TO A MODERN READING OF DANTE'S PARADISO

John Saly

Poetry is a Way to Unity of Experience

I adhere to the romantic notion that all poems deserving the name are fragments of a Universal Poem that will perhaps never be completed but even in its fragmentary state gives men the closest revelation of reality, of all that is in its individual uniqueness, not reduced to abstractions. The diversity of poetry shows the infinite variety of truth but not its infinite adaptability to our wishes. If truth were the results of wishful thinking, our fantasies would all be poetry. They are not. We can meditate on our impossible desires, but, unless we understand their symbolism, they will not bring us closer to the truth. And when we understand the language they speak, we see these fantasies as our attempts to evade reality. But if we meditate on a poem we will gain insight into the nature of reality and leave wishful thinking behind.

If we regard the poem as a clue to reality, the poet's intention becomes a matter of relative unimportance. We have the right to read poetry in any way that makes it meaningful to us, that yields us the experience of a direct encounter with the real. If the poem leads us to the contemplation of truth, it has fulfilled its purpose. There is a meaning to each poem larger and deeper than in the poet's conscious mind. The reader must not look for the meaning of the author but for the meaning of the work. Criticism that refuses to explore the poem for more meaning is pointless. Criticism is useful when it shows us new paths by which the poem leads us into the real.

But are we to find more meaning in a poem by the methods of what T. S. Eliot called "the lemon squeezer school of criticism"? Are we to examine each word and each line for a variety of possible meanings and identify all figures of speech, all rhetorical devices? I think that an operation like this will yield a corpse exceedingly difficult to resurrect. The reality of the poem will fade behind the corruscations of the critic's wit. The meaning of the poem is what leads the reader to the reality he directly experiences as a result of reading the poem. The poem presents appearance in a way that reveals being behind appearance. Therefore we should take the poem as a path that leads into being and our attempts to find more and more meaning in the poem are attempts to read the signposts along this path. As to the goal itself I can do no better than to quote Goethe: "About the Absolute in the theoretical sense I dare not talk. Yet I maintain that he who has recognized it in appearance and keeps his eye constantly fixed on it, will derive a great benefit from it."

To keep our eye on being while we walk the path of the poem: this is the reader's art. To stray from the path into biography, economics, sociology and history of ideas is too great a temptation for many a critic. There is the temptation, too, of taking the poem itself for the Absolute. If the poem were an absolute it could not *mean* anything since meaning must necessarily be given in terms of some more inclusive framework. The aesthetic realm is sufficient unto itself, some critics argue and limit themselves to description of formal structure, to identification of technical devices. Such critics refuse to look toward the end of the path and become blind to the meaning of the signposts in their denial that the path leads anywhere.

But if we cannot, or should not, talk about being, itself, what can we say about meaning that directs us to being? Since we must experience meaning, should we not stop talking about it? *"Lasst euch, was ruhig geruht, nicht in den Herzen zerreden,"* Rilke warned those who were drawing close to being. It is easy and tempting to our vanity to dissipate the meaning of our experience in a flood of talk; this, also, is "Th'expense of spirit in a waste of shame." And there were indeed no justification for discussing our experience of the meaning of a poem if the experiences of all readers did not show some common features. But since they do, the critic is justified in trying to formulate the common content of the readers' experience, for such a formulation, however inadequate, will be a pointer toward the direction which the path of the poem takes. To use the terminology of a particular school of thought, the meaning of the poem reflects the experience of archetypes, which, I think, is merely another way of saying that the poem is a clue, or a path, to total reality. But archetypes are supposed to be common to all and thus a fit subject for intellectual formulation. G. Wilson Knight had summed up the problem very well when he said:

"Poetry of any worth is a rounded solidity /sic/ which drops shadows only on the flat surfaces of philosophical statement. Concretely it bodies forth symbols of which our ghostly concepts of

'life,' 'death,' 'time,' 'eternity,' 'immortality' are only very pallid analogies. They are none the less necessary, if we are to enchain our normal thinking to the creations of great literature . . ."[1]

But we should go beyond "enchaining our normal thinking to the creations of great literature," and, taking the path that the poem opens up into the uniqueness and absolute novelty of being, we should break out from the stagnation of our everyday existence, enchain our whole life to what the creations of great literature reveal to us as truly and fully present. And this consideration leads me to the last point I wish to make in defense of talking about the meaning of a poem. Though there are signposts along the path of the poem that will give a meaning understandable to all, or most, readers, whether we conceive of these signposts as archetypes or philosophical abstractions, the path itself is never the same for two readers. In fact it is different for the same reader at two different readings of the same poem. Therefore an accurate description of the path the poem—and the reader—takes, is neither desirable nor in fact possible. But it becomes all the more important to announce to the world that the poem *is* a path, that it *can* take us closer to being, that whoever embarks upon this pilgrimage shall not be lost in the quicksands, shall not be led astray by the mirage. I have been there, the critic will say, I know what it is to draw closer to being, and though I cannot describe my path in all its detail, I will give you a map of abstractions, generalizations, hints, which constitute my documentary proof. You may not, probably will not, go by the same way, but I want to assure you that the journey is worth your while.

When the critic produces his itinerary he must beware of attributing undue importance to his effort. What Blake said of Swedenborg's works will be quite applicable to any critical exploration of poetry. "Any man of mechanical talents may, from the writings of Paracelsus or Jacob Behmen, produce ten thousand volumes of equal value with Swedenborg's and from those of Dante or Shakespear an infinite number. But when he has done this, let him not say that he knows better than his master, for he only holds a candle in the sunshine."

II

IF a poem may be called a path toward being, then the *Divine Comedy* is the poem of poems. It leads us toward being not by one way alone as most other poems do, opening doors to the inaccessible by metaphor, symbol, allusion and, above all, the harmonious relation of parts to the whole, but by at least four ways more if we are to credit Dante's own exegesis of his poem. In his Epistle to Can Grande he distinguishes between four levels of meaning: the literal is the story of the poem and tells of the state of souls after death, culminating in a vision of God, the supreme Being. But the literal story is merely a veil for the three allegorical meanings: allegory proper, dealing with the state of human society and the realization of the kingdom of God upon earth, moral allegory dealing with the progress of the individual soul *in this life* from sin to purification and the life of grace and, finally, the anagogical meaning that reveals to the reader Eternity as a series of states through which the human soul passes "whether in the body or out of the body, I know it not," to use the words of St. Paul. Together with the road of the literal story, the three allegorical paths also lead toward being: perfect society, perfect moral life, and perfect freedom of the spirit.[2] Though Dante's *Comedy* is often spoken of as a poetic *Itinerarium Mentis ad Deum,* I think I am not doing violence to the poem if I describe it as a path toward being. In the *Comedy* Dante himself often speaks of God with ontological overtones, *e.g., "il gran mar dell' essere."* After all, God, whose direct vision was the aim of Dante's journey, has defined His own nature in the words "I am Who I am." He is Being above all, the only being that truly *is,* not borrowing His being from anyone or anything, the ultimate source and perpetual upholder of all lesser beings.

The question is, and it is by no means a negligible one, whether these paths to being, broken through the jungle of violent party-feuds, hatreds, power struggles, wars, and just as violent pleasures, more than six hundred years ago, are still open to us or have they become a hunting ground for archeological parties? In line with my very first assumption that all poems lead us to full reality, I assert that no poem can ever become outdated in the way a scientific hypothesis can; the *Divine Comedy* is certainly a poem and thus it must retain its relevance. But the *Divine Comedy* also contains a great deal of medieval history, philosophy, science, which form an integral part of its poetry. Can someone unacquainted with Italian politics, scholasticism, Franciscan mysticism and Aristotle's Physics enter into the poem fully enough to experience it, to walk on it as a path toward being? There will be some readers who will be put off, but perhaps no more than they have been any time, since, say, the sixteenth century. For others the *Comedy* remains accessible with the help of the notes printed in any respectable edition. Of course it will hardly reveal its full power upon first reading: but in this the poem shares the veiled greatness of Shakespeare's tragedies. We can still walk the four paths indicated by Dante and, of course, the fifth one common to all poems, the approximation of full reality through image, metaphor, symbol.

But there is special benefit for us today in

[1] The Starlit Dome, London, 1941, p. 90.

[2] See Ep. X. to Can Grande. §7.

understanding and even entering the medieval attitude toward being that permeates the *Comedy* through and through. The *Comedy* is the product of a reverence for unity that characterized not only Dante's mind but the philosophy of his age as well. Unity, of course, was the primary attribute of being. To quote Dante himself,

"I affirm that 'being' and 'oneness' and 'goodness' are related in steps of priority . . . For 'being' naturally precedes 'oneness' and 'oneness' naturally precedes 'good'; for that which is most existent is most one, and what is most one is most good. And the further anything is removed from the supremely existent the further it is removed from being one and therefore from being good. . . . Hence it may be seen that sinning is naught else than despising and departing from 'unity' and seeking multiplicity."[3]

Such a point of view is, I think, a healthy antidote to our modern cult of plurality, multiplicity, and distraction. The medieval order was, of course, broken up by forces feeding on the diversity of the physical world, on the multiplicity of nature and the individuality of man, factors which were not given their due share in the concentrated striving for a general synthesis. But in succeeding ages the pendulum of history has swung to the other extreme; people almost forgot that to seek unity is to advance toward being. The medieval mind turned toward the unchanging reality in which we truly live and move and have our being: such an attitude and the complexities of our modern life may furnish the elements of the new synthesis that, consciously or unconsciously, we all are looking for. The third cantica of Dante's *Comedy,* the *Paradiso,* stresses in particular the truths which were neglected after the collapse of the medieval world-picture.

By no means do I advocate the reading of the *Comedy* through medieval spectacles. For the common reader to try and put the poem into its entire medieval framework would be to mistake its mode of existence as a poem and treat it as a historical document. The *Comedy* may still be experienced as a poem, but our experience of it will have to be formulated differently from the medieval reader's. What is more, if we approach the poem with an open and receptive mind, we will find in it a somewhat different meaning than its medieval readers, because our understanding of the world includes much they have not known or have rejected. This implies the view, and I am far from shying away from it, that a great poem like the *Comedy* was written for all ages and much of its meaning reveals itself only with the passing of time. Or, as Shelley had put it in the *Defence of Poetry*:

"His (*i.e.,* Dante's) very words are instinct with spirit; each is as a spark, a burning atom of inextinguishable thought; and many yet lie covered in the ashes of their birth, and pregnant with a lightning which has yet found no conductor. All high poetry is infinite; it is as the first acorn which contained all oaks potentially. Veil after veil may be undrawn and the inmost naked beauty of the meaning never exposed. A great poem is a fountain for ever overflowing with the waters of wisdom and delight; and after one person and one age has exhausted all its divine effluence which their peculiar relations enabled them to share, another and yet another succeeds, and new relations are ever developed, the source of an unforeseen and unconceived delight."

It is, then, legitimate to try to formulate the new meaning which a poem like the *Comedy* has for ourselves. Through different experiences in reading the *Comedy* each age approaches the reality to which the poem is a path. Our categories of thinking change, our common symbols that carry significance change, and our language itself changes from age to age. We cease to react to certain words like beauty, for instance; we can only with difficulty admire the deftness of syllogisms and certain images and symbols lose their power over our attention. Thus inevitably there is much in the *Comedy* that, once powerful, moves us but little. Though many of Dante's images and metaphors come from nature and the everyday life of man and are thus more durable than some of the intricate and specialized imagery of, say, baroque poetry, even these elemental comparisons and analogies are losing their effectiveness for people living in modern industrial society. Fewer people live in the country, fully immersed in the cycle of the changing seasons, exposed to the power as well as to the loveliness of nature. People are ceasing to use the implements, dishes, utensils Dante often names. Some of the trades, such as the tanner's, the blacksmith's, are mere names to many of us. Or take a garden: the medieval walled garden with all its connotations of a secluded paradise, a place of refuge in the wilderness, is not the garden we usually have in mind. What is a garland of roses to us and what was it to a fourteenth-century Italian? I think the difference can hardly be exaggerated. For one, we have for the most part lost the pre-Cartesian intensity of experiencing the physical universe. To us the garland of roses may be pretty, but the fire that burned in each globe of the perfect flower—a nonmaterial fire—is hardly ever manifest. Yet there is a consolation: Dante, after all, uses his images to suggest a reality beyond them. We may lose the capacity to see through the image and thus lose the living image, retaining only its shell. But what the images symbolize can never be lost; perhaps there will come a time when we can contemplate it without looking through the glass of symbols.

Meanwhile other paths open up in the poem, paths perhaps untrodden or neglected before. The

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[3] *De Mon Chia,* Bk. I. Ch. XV. Trans. by P. H. Wicksteed, Temple Classics ed. London, 1904.

new signposts read in language that is closer to psychology than to theology, yet to those who enter these new paths the *Divine Comedy* becomes once more an undivided whole. One of my aims in trying to describe, at least in familiar abstractions, the path I followed in my reading of the *Paradiso* is to assure the reader of today that not only is it still possible to see the *Comedy* as a whole from the historical point of view, but that one can still walk it as an unbroken path toward being.

III

AMONG the traditional ways of mysticism, which are also paths toward being, though of a different kind, the Western mystics have mostly followed the *via negativa.* This way leads toward union with being through the rejection of sense-experience. The created world is an obscuring wall between the soul and her Creator. Only when the pleasures of the eye, of the ear, together with taste, scent and touch have been rejected and the flesh vigorously subdued to the dictates of the spirit, can man approach God. Sense-images can, the authorities of the negative way insist, in no way approximate the Being of God; neither, for that matter, can intellectual formulations. The soul, having abandoned all such vanities, will finally be gathered to Him, having nothing of her own, an empty vessel ready to be filled by Him and with Him.

The end of his whole *Comedy,* Dante declared, was "to remove those living in this life from the state of misery and lead them to the state of felicity." But the journey on which Dante leads his reader toward felicity, toward union with being, is not the *via negativa.* And the *Paradiso* which is specifically the mystical itinerary of the soul in grace—after the soul has attained self-knowledge in the *Inferno* and has been purified in the *Purgatorio*—does not ask the reader to reject sense-images and intellectual concepts. Indeed, as a poem, it could hardly do without either. Even the poetry of St. John of the Cross, a burning account of an exclusive love between the soul and God, has to rely on analogies of earthly passion, images of earthly beauty. There is, then, a way to being, other than the *via negativa;* the whole *Comedy,* but more specifically the *Paradiso* is the record of a journey along this other way. Charles Williams, whose book on Dante, *The Figure of Beatrice,* is the exploration of this idea, calls it the affirmative way, because, as he says, it is the way of the affirmation of images. Every man has some fundamental experience which might become the starting point of the affirmative way. Dante, Williams says, "refers us not to a rare human experience but to a common . . ." His work begins with an experience that is common "and continues on a way which might be more common than it is."

He had the genius to image the Way of Affirmation wholly—"after a particular manner indeed, but then that is the nature of the way of the Images. If a man is called to imagine certain images, he must work in them and not in others. The record of the Dantean Way begins with three things—an experience, the environment of that experience, and the means of understanding and expressing that experience; say—a woman, a city, and intellect or poetry; say again—Beatrice, Florence and Virgil. These images are never quite separated, even in the beginning; towards the end they mingle and become a great complex image. They end with the inGodding of man."[4]

I am very much indebted to Charles Williams and to Dorothy L. Sayers, his disciple in Dante studies, for this fundamental concept of the *Comedy* as the most complete presentation of the affirmative way. Williams also calls the Way of Affirmation of Images "the great Romantic way" and among later examples of poetic presentations of this way cites Wordsworth's *Prelude.* But for Wordsworth, he says, the fundamental experience that was affirmed and amplified in images was not romantic love but Nature.

Although the path of Charles Williams runs close to, and sometimes parallel with, the path I am trying to give an account of, the two are not identical. He suggests that "for unfallen natures, the *Paradiso* would be the normal development of human romantic love,"[5] and I can see how, with this interpretation in mind, the modern reader can experience not only the *Paradiso* but the entire *Comedy* as a coherent whole. But my own experience of the *Paradiso* was not a progress through the ascending stages of perfect romantic love. Dante's images in the *Paradiso* spoke to me of "the supernal things of eternal glory" as indeed he himself tells the reader that, anagogically understood, this is what the poem is about. In other words, I see in the *Paradiso* a presentation of the eternal states through which men continually pass. These states are not identical with the stages of self-denial through which the negative way of ascetic mysticism passes. Rather they reminded me of Blake's Eternal States, and even of the stages of the hero's progress in such works of secular mysticism as Goethe's *Faust,* his *Wilhelm Meister,* and even *The Magic Flute.* The order of the *Comedy* is the order of reality which we find, though presented less systematically and without the strictly orthodox theological interpretation, through the literature of the world.

In my reading of the *Paradiso* I tried to concentrate on Dante's exact characterization of these states of spiritual progress, which he achieves not only by philosophical means but also by the poetic means of image, metaphor, and symbol. The *Comedy* thus enables the reader to experience these states, to know them more fully than they can be known through any abstract description. In fact while we read the poem we know the

[4] *The Figure of Beatrice,* London 1943, p. 11.
[5] *Ibid.,* p. 101.

states along our journey almost as much as the people who live them. The difference is that when we put down our Dante we are back in our everyday selves, whereas the saint remains in paradise. To live through the eternal states of man's progress toward being is the essence of my path through the *Paradiso*. Of course, this path goes through the entire *Comedy* and it is not strictly my own. Many readers and commentators have alluded to this meaning of the poem in passing and, in case of the *Inferno* and the *Purgatorio,* the moral allegory was often discussed systematically. The difference between the moral and anagogical meaning is not observed by most commentators. Under the heading of allegory or moral allegory they often include a level of meaning that is, strictly speaking, concerned with the structure of the spiritual universe and therefore anagogical. To decide whether it is always possible in detail to insist on the strict separation of the two levels also in the *Purgatorio* and — to a lesser degree—in the *Inferno,* would need a more intensive study of these cantiche than I have made at present. Mr. Francis Fergusson's *Dante's Drama of the Mind* f.i. is a recent and most illuminating account of a reading of the *Purgatorio* with a point of view similar to my own. Such a detailed record of a reading of the *Paradiso* is, at least as far as I know, not available. Our age moves with greater assurance among experiences of hell — see much of contemporary literature—or even of purgatory, than of paradise. This however does not mean that the last named are any less real; if anything, they are more real. But the higher Dante ascends, the less I can follow him with my emotions and will, though without the participation of these no experience of the journey can be complete. Much of the pleasure I try to communicate is an intellectual pleasure in symmetry, order, harmony; it is merely a shadow of the full delight of the united movement of intellect, desire and will which Dante unfolds. Of the *Paradiso* more than of any other work—except perhaps the *Winter's Tale* and the *Tempest*—it is true that to enjoy it to the full a mere "unwilling suspension of disbelief" is not enough. An "unknown mode of being" can be made known only to those who, however fleetingly, have already been immersed in it. Yet as Charles Williams suggested, paradise starts with common human experience; the seeds of the heavenly rose are in all of us.

If we consider that the *Paradiso* opens up for us a direct path toward *being* then a listing of the sources of Dante's thought, allusions at his personal circumstances, become matters of secondary importance. The establishing of influences and of parallel movements of thought is an essential part of scholarship, but such an investigation — very ably conducted by many scholars — is not my purpose here. I am trying to talk of what I think is both relevant and communicable in my experience of reading the *Paradiso;* I call my "method" meditations because I have no intention of laying down the law on how to interpret the poem. Yet I hope that my meditations will suggest an order, individually perceived, but, in some form or another, there for all readers. If my method seems unsophisticated and too direct, this also is deliberate. Far too many opinions are presented nowadays with so many hedgings and qualifications that even the most attentive reader does not know what to agree or disagree with. To stress the complexity of the situation is perhaps the most fashionable intellectual attitude; such an attitude often conceals a basic inability to perceive the situation as a whole, in its essential simplicity. To understand anything — even the complexity of anything — one needs to understand it first in its simplicity. And simplicity — though not simple mindedness — is a virtue that enables us to find meaning.

In the history of thought the increasing unmanageability — and thus seeming complexity — of the body of knowledge, the mechanization of thinking, dryasdust hairsplitting mark the end of an era. When philosophers and critics are constantly trying to make new distinctions, to "sharpen their tools," to analyse situations more and more minutely in a hopeless attempt to catch the infinite variety of objects in a net of abstractions, the signs point to a change at hand. When knowledge becomes unmanageable, we have to realize that our old point of view no longer makes sense. Seen from *there* all phenomena become products of chance and, though classifiable, unintelligible in the ultimate analysis. This is the time when a genius shifts his observation point and the world suddenly makes sense again, becomes whole again. We have not reached that point yet, but some intellectual trends are beginning to converge.

If it is true that poetry leads us toward the simplicity of being, then poetry — insofar as it is true to itself — might be one of the threads by which we can find our way out of the labyrinth of complexities that make our life meaningless. For at the present the real meaning of our lives is hidden beneath the surface. After I have read and re-read the *Paradiso* the idea comes to me that a time might come when, looking back from the heights of our new-found simplicity, we might say with Wordsworth that we have

"Adored and worshipped when we knew it not
Pious beyond the intention of our thought;
Devout above the meaning of our will."

Mr. Saly, who teaches English at Wells College, also holds a degree in science (geology). The above article forms the Introduction to a book now in preparation, to be entitled *Meditations on Dante's Paradiso.*

PROBLEM: TO ESTABLISH A SCIENCE OF RELIGION

John C. Gill

Can the Truths of Religion be Treated as Scientific Postulates?

IF some way could be found to break down the issues of religion into smaller, manageable problems, we could begin their solution one by one. We would then have a tool of agreement more powerful than science itself. It is the purpose of this paper to show that there is such a tool, that its elements have all been discovered, and that its application will lead to a new science. The function of this science will be to enable people to move in the direction of mutual understanding, to substitute progress where now we have frustration and constant surprises.

It is of course a cliché that the scientific age needs religion—the kind of platitude that splits intelligent humanity into warring camps. There is, however, no serious doubt that mankind must develop a sense of responsibility in order to survive. Would it be going too far to say that this all-important element has not been located by the neurologists? Neither has it been found by the old ways of religion with their sectarianisms, their rigidities, their childish insistence that a set of myths, fables and folklore be taken literally. The emphasis of conventional religion is persistently aside from the point. The whole institution is pervaded by an emotionalism barely covering a fundamental lack of conviction.

Seen from the outside, the liberal movement might offer some hope. Actually, on closer view, it is slivered into a myriad little "doxies" of its own. The further liberalism goes from the conventional, the more trivial it becomes. Its sole stock in trade is a certain tolerance, "You think your way, I'll think mine." Important, but hardly enough. Liberal religion constitutes a rearguard action, adding a liberal quantity of water where the mess has proved unpalatable.

The failure of Christianity to go along with the modern world is due to lack of an appropriate symbolic method. Science in the 17th century was searching for a Mathematique universelle (Descartes: *Discours de la Methode* pt. 2) a fantastic idea, which became Cartesian geometry, and the calculus with its many applications. The leaders of religion, firmly entrenched in an institution more authoritative than present-day universities, had the answers. The church saw no need for the slow, careful, seemingly trivial work of elaborating one concept at a time until no reasonable person could doubt its clarity. The church had answers without bothering to ask questions. When protestants challenged its power, the result was thirty years of war ending with additional dogmas but no more awareness of problems.

Perhaps the commonest error made by both scientific and religious minds which has prevented progress in the field of ideals and responsibility is the assumption that while scientific knowledge is based on experience, religious beliefs rest on authority, on faith, feeling and tradition. From this premise flow two false corollaries. One is that religious beliefs were laid down at some past period, and are not to be improved. The second corollary, which is as far from the truth, though more plausible on the surface, is that modern science consists in elaboration of direct experience (induction).

Religious beliefs were not laid down complete in the past. This is seen by the fact that while most religions do believe in an original revelation, there is complete disagreement as to when the event occurred. That religious practices, institutions, and beliefs do develop along with other aspects of human life is overwhelmingly proved by historical data.

Philosophers frequently say that modern science represents experience as against medieval dependence on authority and faith. Although the notion has an appealing simplicity, the facts beg to differ. That the earth was fixed in the center of space was a matter of experience as well as of definition. Part of the authority of Aristotle came from his saying what everybody could see. Take some of the other medieval theses which are supposed to rest on blind authority. Is anything more obvious to experience than that the sun rises in the east and sets in the west? Who has failed to observe that force is required to put things in motion, and that when their force is exhausted they come to rest in respect to the earth? Those who blandly reprove scholastics for not knowing that heavy objects and light objects fall at the same speed, have apparently never tried dropping a heavy object and a light object!

The marvel of Galileo's discoveries is that before there was a vacuum, he devised ways of testing gravity. He constructed definitions of force, motion, and momentum quite independent of anything that could be observed at his time. (*Dialogues Concerning Two New Sciences,* by Galileo Galilei, Dover Publications N. Y. c 1914, pp. 160-161, for example.) Of course his theories, as developed, correspond much more closely to experience than did Aristotle's. The important

point here is that the "just observing" carried on for two thousand years could not accomplish these results.

Because of such considerations we cannot accept the common view that religious beliefs are based on faith, feeling and tradition, while scientific knowledge rests on experience. In spite of what their adherents may say, religious systems do grow, change, and incorporate elements of experience. On the other side, science includes a great deal which is not experience at all, but a system of symbols, definitions and constructions.

THE growth of modern science has not come from asking great general questions, popular as that notion is among philosophers. The development has taken place rather in seemingly trivial, unimportant areas where a careful observer reached such clear and exact definitions and such detailed observations that something very much like certainty was attained. One way to explain how modern science happened is to note that at the end of the middle ages there was already in existence one science—the geometry of Euclid—which served as a model. (*Modern Science and Modern Man* by James B. Conant, N. Y. 1952, p. 21 suggests that the age old process of experimentation used by artisans became associated with abstract reasoning as represented by Euclidian geometry. See also: *The Logic of the Sciences and the Humanities* by F. S. C. Northrup, N. Y. 1948 p. 134.)

The early scientists, including Newton, attempted to cast their knowledge in Euclidian form and to attain Euclidian clarity and certainty. What was Euclid's method? Where did Euclid start? It is hard to imagine anything as trivial, as nonsensical as geometry must have appeared to the casual, unsympathetic observer. Euclid begins: "Problem, to describe an equilateral triangle on a given finite straight line." (*Elements* Bk. I Problem 1.)

The invention of the clock, its place in the Renaissance tower in the center of the city not only made timing of observations easy, but also furnished a mechanism "just like the stars." From there it was only a short step to the Galilean-Newtonian universe which was "just like a clock." God became a sexton who rang the bells on holidays, wound the thing and occasionally dusted it off.

Science has had to strive constantly to eliminate theological vestiges, "water that seeks its own level," nature which "abhors a vacuum," animals which "adapt themselves to their environment," atoms which "escape" from one orbit to another, walls of the heart which are heavier "in order to handle the greater pressure." The struggle of Wohler to have principles of chemistry applied to organic "life product" substances, and of Darwin to explain evolution and selection of species, is scientific. Hans Driesch attempted to make some concept of entelechy scientifically respectable, yet entelechy is as out of place in biology as miracle is in physics. When something incredible is alleged, investigators work to find a flaw or a natural explanation. Supernaturalism and vitalism are counsels of despair; they jibe, "You will not find a scientific cause for this one." (The remark, incidentally, is usually made by some person with a vested interest to guard.) The supernatural is not impossible. It is just ruled out. To assert that an event has no cause, or no analyzable or no natural cause, is to say that science cannot be applied, or is not being applied.

If, as many scientists are convinced, all scientific knowledge is hypothetical, the hypothesis of cause, or functional relationship underlies all the rest. (*The Logic of Modern Physics, by P. W.* Bridgman, N. Y. 1948 pg. 37,80) The idea of cause has grown from a simple 1,2 relationship of pushing, or of two billiard balls, the second taking up energy lost by the first. From this humble beginning, cause has developed into a most abstract, general concept capable of dealing with multiple factors. The basic assumption "if it isn't causal, it isn't science," is rather taken for granted than expressed. Where supernatural or mystical explanations are required to maintain a theory, most reputable investigators turn away. Thus many lines of study pursued by some of the most brilliant minds of antiquity have been dropped as based on false leads. Physics, chemistry, and astronomy have developed, sloughing off sympathetic magic, alchemy, and astrology. The most general hypothesis of science is cause; perhaps to include mathematics it should be called "functional relationship." If an event cannot be related functionally, it is not scientific.

Here we meet the strangest fact in modern history. The scientific movement, when building railroads, steamships, devising vaccinations and hybrid corn, unlocking the vast energy in the uranium atom, has impressed even troglodytes. While natural science was producing these results, the scientific psychologies, laboring like the mountain, brought forth a mouse. They succeeded in demonstrating that a dog's mouth waters when the dinner bell rings! (For discussion of the failure of the natural science method in psychology etc. see *Philosophy in a New Key* by Suzanne Langer, N. Y. c 1948 Pelican ed. p. 18-19).

When progress came to the humanistic field, it took a form which many psychologists were quick to point out was not scientific at all. It consisted in allowing the patient to talk. The unverified, and from the old scientific point of view, unverifiable thought, dream, and phantasy content was poured out. The psychoanalyst formed it into a history and an hypothesis. Just the material that the scientist would hitherto have discarded, the psychoanalyst used for his explana-

tions; and what theories! The psychoanalyst populated the mind with gorgons, hippocentaurs, and chimeras dire. His constructions have borne fruit in explaining behavior and in sometimes affecting a cure.

Why could psychoanalysis handle problems which the seemingly more rigorous psychology missed? Psychoanalysis was using a method of thought as powerful as science; one familiar in a crude form to students of the history of religion. This method has been used as effectively by early religion as it could have been by early science. It is more than a coincidence that Freud, for all his anti-religion, rediscovered Oedipus and the furies and that Jung erected theories around the Garden of Eden and other Hebrew-Christian myths.

The wisdom of contemporary psychiatrists is to view patients as "people with problems." The complex symptomatologies (reaction types) are regarded not as different diseases, but as "modes of adjustment." The human being is in a quandary, for him insoluble. The neuroses are unsatisfactory attempts at a solution. The doctor's task is to see the problem from the patient's point of view, but unemotionally, helping to distinguish elements which can be altered. When the problem is worked out you have a "cure."

Psychiatry and the social sciences related to it build "case histories." These clearly have an affinity to the "natural history" period in the growth of science. After the data are recorded the paths diverge, and this point furnishes the key to our question about religion, for just as science is an elaboration of the idea of *cause*, the other group of problems is based on another concept—that of *purpose*.

From a natural science point of view man is a part of a system of cause and effect, or functional relationships, and there are no exceptions. If the causal chain has still significant gaps, with determination and work these will be closed. Science has staked its life upon this conviction and it has born fruit. There is, however, another general hypothesis which also has produced results in psychiatry and in the history of religion. It is that man is purposive and may be understood in terms of objectives which do not yet exist in the ordinary sense. To know a person, you have to know his purposes or purpose. The economist can assume a purpose for a corporation or a social class. The historian may speak of the purpose of a national policy. The bolder assumption of a purpose for the human race, for life, for the universe, has characterized the great prophets of religion. From this they have drawn astounding and often true conclusions.

From a religious point of view, men and events are part of a system of purposes. Here mechanical cause is the mischievous ingredient, playing worse havoc than teleology did in science. Where life is purposeful, causes becomes excuses. Purpose is not to be regarded as a dogma or a certainty, but as a generalized hypothesis, like that of causality so boldly made and so abundantly justified by science. *Religious faiths are so many attempts to elaborate the hypothesis of purpose.* Their consequences can be compared with the facts, checked with experience. On some such basis agreement is possible.

An interesting confirmation is found in the religion of Naturalistic Humanism. Adherents to this faith are convinced that theirs is the religion which mankind must accept as he grows mature and intelligent. Naturalistic Humanism can be summed up in two main theses: 1) An unqualified acceptance of the scientific method and the results of science; and 2) Man's task to use his knowledge to remake the world. Both are admirable ideas, and all people of good will must wish humanists success in their enterprise; but there are difficulties.

The main problem is that these two theses are not compatible. Humanists are not determinists; man must direct his own fate. But the naturalistic sciences on which humanists mainly depend show man as the product of various factors such as heredity and environment, social institutions or community culture. Where in all this does purpose come in? The more loyal you are to the various sciences, the less room there is for any such additional "force." If humanists assume purpose from some non-scientific source, for practical reasons, what defense do they have against those who, for the same reasons, go beyond the atomic individual and ascribe purposes to corporations, social classes, nations, humanity and even to the sidereal universe? To an unprejudiced observer, human life frequently looks as random as history!

The law has long taken for granted that there are motives in human conduct which can be discovered. The outcome of many cases depends on judgment of intent. Volumes are devoted to the technique of finding the purpose in a given act. If we choose intent as our starting point, a new system of facts and relationships can be exposed. We will evolve different concepts—a non-Newtonian science investigating purpose in its many aspects. Like natural science, this should explore and describe facts; like engineering, agronomy, or medicine, part of its task is to alter the facts described.

Unfortunately for the simplicity of the scheme, no one has yet succeeded in relating causality and purpose to one another in a satisfactory way. The two most general hypotheses which cover the whole area of human experience remain, as far as we can see, inconsistent. They are like the wave theory and the corpuscular theory of light. They can hardly both be true, yet one explains refraction, and the other the photo-electric cell. Doubtless some day some genius, or the natural progress

of science, will formulate a more general theory in which both have their place. There are immediate practical problems which can be tackled without waiting for this, however. Purpose is not a new or different force, or a defiance of causes. The two are incommensurate, since where they operate each seems to be complete. You can't say a given situation is one-fourth purpose and three-fourths cause without talking nonsense. Purpose and cause are different ways of formulating data in response to different questions.

TO summarize our argument thus far, we have suggested that a new science, a non-Newtonian line of approach, could deal with the large group of problems thus far unsolved by natural science methods, though breached by a number of disciplines, notably psychiatry. These lie in the area of religion, of human agreement and goals. What we have said can be drawn into five main points:

1) Religious knowledge as well as scientific knowledge consists in hypothesis and observed fact.

2) Christianity has not kept pace with science because it has failed to evolve an appropriate symbolic method.

3) The fundamental hyypothesis of religion is purpose (called here "hypothesis R"). It corresponds to the hypothesis of cause or functional relationship ("hypothesis S") taken for granted in all scientific inquiry.

4) The hypothesis of purpose (R), whether applied to the individual, the corporation, the class, the nation, to humanity, to life, or to the universe, has shown itself effective and has produced valuable observable results. If correct it should still develop clarity and universality as new knowledge and new applications are discovered.

5) A system of religious symbols (growing from hypothesis R) is to be tested by internal consistency and by its correspondence with observed fact (not by agreement with science, hypothesis S). Religious and scientific hypotheses are to be used where their results correspond with observable facts.

Now for a case in point to show the power of the method, drawn necessarily from a time when the thought was not so clearly understood as it will be.

THE Arabs of the seventh century were small tribes scattered through a large area. Their poetry and manner of life indicate that they were in most respects cultivated and highly civilized. Their commerce covered the whole known world. As a historical force they were insignificant, being divided into many warring clans. Their social system was cruel in the extreme, with wealth and abject poverty side by side. Slavery was unmitigated by any social scruples. Their religion had changed little from the old stone age: they believed in Jinn or spirits of rocks, of trees, of springs and gardens, beneficient, friendly beings who could be met and worshipped in particular haunts. Each family had its own protecting deity, for there were wild, savage, hairy spirits of desert and desolate waste places who would rumble underground, and leap on the lonely traveller.

Tribal loyalties were strong. The absolute obligation to avenge the death of a tribal brother was backed by the tribal god. Once a year all good Arabs who could afford it went to Mecca to circumambulate the Kaaba, a great block of stone which was probably a meteorite. The custom helped to unify Arab civilization, and doubtless was good for Mecca's businessmen. Aside from tribal duties, the intelligent Arab could hardly have taken his religion seriously. The Arab world was ripe for religious reform.

Into Mecca and all the large cities people drifted from the countryside and from the whole commercial world beyond. Thousands must have been members of tribes disintegrated and scattered by poverty or war; these tribeless ones were without citizenship. They were often homeless, and unprotected; thus many became the slave population, with no rights beyond their cash value, varying with their health, beauty or skill.

It was to the outcasts and the slaves that Mohammed appealed, having been himself an orphan. He taught "belief in Allah and the last day." Allah's tribe was made up of those who submitted; they were tribal brothers. In our terms, he taught them a purpose—individual and social. The story is well known: Mohammed was opposed, threatened, and ultimately driven out by the aristocracy of Mecca, yet Allah's tribe continued to grow and win victories. The rulers of Mecca were compelled to accept Mohammed. The Arabs with their new faith became, almost overnight, a world force. The tribal brotherhood of Islam, overleaping hereditary barriers, is still a power in parts of the world where racial problem are most intense.

There is a majestic scene of crowds gathered outside the building where the prophet lay dying. Abu Bekr, once Mohammed's enemy, now his faithful follower, called: "O people, whoever worshipped Mohammed, let it be known to him that Mohammed is dead, nd whoever worshipped Allah, let him be sure the Allah is everliving, and dies not." (*Islam and the Arabian Prophet,* by G. I. Kheirallah, N. Y. 1938, pg. 106.) Forty years after the Hejira when Ali, son-in-law of the prophet and last of Mohammad's close friends was murdered, the movement came to terms with the old system of aristocracy; but a new force had been created. Responsibility outside the tribe to all believers and even to the whole world was established.

Important to Islam is the doctrine that all things are possible to Allah. Henry Norris Rus-

sell once told the story of a cultivated, educated Mohammedan, a date farmer. Questioned by a Westerner, "What is the average life of a palm-tree?" he replied, "That will be known only after the Great Day of Judgment." When the visitor asked for an explanation, the Moslem was surprised. "Surely, you Christians believe as we do, that all things are determined by Allah's Will . . . Then when he says to a date stone 'spring up' a palm grows. When he says to that tree 'die' it dies. Only when the Great Day is over, and the affairs of earth are ended, will it be possible to know what average age Allah in his wisdom has assigned to a palm-tree." ("Determinism and Responsibility" by Henry Norris Russell, *Science*, March 19, 1943, p. 250.)

Surely, and the primitive sin of census or numbering (II Samuel 24:9-10) like the primitive sin of divination (Deuteronomy 18:10) sets a limit to God's power. The prior question is "What is right?" and the second question, "What should be done?" In this area of what is right, the pollster merely adds confusion, and the individual who predicts war or revolution is guilty of creating those things.

IF some way could be found to break down the issues of religion into smaller, manageable problems, we could then begin their solution one by one. We would have a tool of agreement more powerful than science itself. We can see how the complexities of ideological problems are actually attempts to clarify and apply to human affairs the idea of purpose. Jesus uses the analogy of the family with its implied purpose for his model of God as father. From this proposition flows the consequence—still expressed as a figure —"all men are brothers." From this the corollary derives, "Treat other people as you would have them treat you." Schweitzer generalizes to include the animals, "reverence for life." Extend, test, clarify. Each application helps to make clearer the meaning of the original symbol.

The form of symbolic thought is well illustrated in elementary algebra. The conditions are stated, and then: "Let x = the desired number." The solution is the discovery of the value of x and of other variables which depend upon it. That an idea should gain generality and clarity as it is used is quite consistent with what we know of the process. We should learn more about purpose as we proceed.

Let x = that purpose which, if accepted, would unify and bring peace to mankind. Let R = the purposive connection of events in the real world. The question is, then, to find the conditions under which x = R.

There is nothing prohibitive or insoluble about this kind of problem. Like others, it takes a system of notation and the work of many patient investigators. Religion is quite fortunate. When the physicists attacked the phlogiston theory, humors, crystal spheres and water columns which broke of their own weight, they had only Euclid as a model. Religion has three hundred years of the most brilliant scientific inquiry in the history of mankind. Now for something very simple and obvious for a first step. "Problem: To describe an equilateral triangle on a given finite straight line."

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Education and the National Purpose

THE urgent need to preserve, cherish and cultivate the essentially human qualities of our society are being emphasized and re-emphasized today. American education and American culture are being challenged to reappraise their attitudes toward the individual citizen, if the rapid pace of technological change is not to engulf him entirely in a wave of mass mechanization and dehumanization.

The dangers of such dehumanization are certainly real. Alvin Pitcher, writing in the *Harvard Business Review* (January-February 1961) on "The Importance of Being Human," points again to the undeniable facts (1) that modern man is on the move, both physically and socially (and hence is rootless), (2) that man is thoroughly mechanized, to the extent that his time, talents and tastes are at the beck and call of an economic system that must keep its machines running, that is, he is at the service of productivity, and (3) that man is becoming "privatized" in that large numbers of citizens have lost the power to exercise civic responsibility, due to lack of information and power to affect national policy, and to an ever-increasing dependency upon the corporations which employ them.

These three phenomena pose far-reaching problems, in that they affect the conditions of human life and growth. These conditions, necessary for man's existence, have been described by Paul Tillich as the movement between the polarities of individualization and participation, dynamics and form, freedom and destiny. For every man is at once a self or person *and* a participant in inclusive forms or structures. It is Pitcher's argument that in our technological society "the privatized, mechanized, mobile man increasingly lives in a private world, cut off from meaningful participation in political life, from roots in blood and soil, and from a significant relation to the productive enterprise." His view is sustained by others who have written about the predicament of the "other-directed man" (David Riesman), the "organization man" (W. H. Whyte), and the man subjected to "marketing orientation" (Erich Fromm). Under mechanization, man is required to adapt himself ceaselessly to the creations of technology; *can* he live in a state of constant flux without the support of forms and structures which have some continuing relevance and validity?

The ability which is exercised in decision-making reflects the basic character of man's nature. Yet today we find ourselves free only to accept the choices created for us—free to choose only more or less innovation, and even that choice seems to be in the hands of a very few people. Mass communication has forced upon us the image of the "all-American model who buys the products of the machines, adapts himself to change, and voluntarily renounces freedom, form and individualization." From these facts Pitcher draws three conclusions: First, that freedom with or without equality is not in itself enough; second, that the national purpose must provide more participation and more stability, and third, that the ethos of our personal and social life must be transformed. In this connection, when we talk of freedom, the pertinent question is, Freedom for what? The answer to this must inevitably be sought in the areas covered by Pitcher's second and third points.

For example, the need to increase stability and dependable order in our mobile society, and thus to combat the disintegration of personality and society, requires extension of the inquiry into many diverse areas. Among these Pitcher mentions the balance of population growth, the control of automation, and the curtailment of advertising which sows the seeds of discontent. There are of course others, notably the transformation of education into an instrument for the integration of modern man. Any and all of these can only be sought through a change in the attitudes, aspirations and ideals that make up our national ethos. As Pitcher rightly contends, the basic struggle today is not between democracy and totalitarianism, but between a society dominated by a concern over commodities and careers and one in which essential humanness predominates. In reformulating and sustaining our national purposes, Americans will have to re-examine our spiritual heritage, particularly that aspect of it which is founded on the belief that the good as given by man's nature can be understood by rational means.

This must be a goal for the whole nation, but it must also be a specific challenge to education, for it is primarily through education that national purpose can be focussed and cultural ethos transformed. The nature of the task and the opportunity is indicated in two among many articles which are currently being written about the state of American education. One, "Education—for What?" by Francis H. Horn, appeared in the March 1961 issue of Teachers College *Record;* the other, "The Remaking of American Education," by Charles E. Silberman, was published in the April 1961 issue of *Fortune.*

In *Fortune,* Silberman characterizes the ferment

visible in American education as turning about a central idea: the pursuit, not of skills alone, but of intellectual excellence. The goal of focussing *mass* education on intellectual development will indeed require nothing less than an educational revolution; if it succeeds, even in a partial way, it will attack the problems Pitcher defines at the roots. That the goal of intellectual excellence should be set before every citizen, not just the gifted few, is emphasized by Horn also, when he writes: "I cannot agree with critics of education today who find the solution to the world's problems in the better education of an intellectual elite . . . the world today requires the education of all our population to the maximum of their ability."

Increasing attention and effort is being devoted to the revision of teaching in order to achieve this new level of excellence and so to prepare young people for what Horn characterizes as "tomorrow's world." Silverman mentions the reforms being undertaken in various parts of the country which emphasize the intellectual aims of education and seek to minimize the influence of such non-intellectual goals as "life adjustment" and "social adaptation" which so largely influenced the curriculum only a few short years ago. Horn distinguishes some of the reasons why such life adjustment education has fallen into disrepute: It is seen that the purpose of education is to teach individuals to modify life, to improve the environment, to cure social ills, not merely to conform. In fact, education should prepare the individual for change and uncertainty as necessary conditions of modern life. If these conditions are accepted, the fact of increasing mobility need no longer create problems of emotional instability. But if this is to be achieved, Horn points out, the current emphasis on "belonging" and social "togetherness" must be abandoned. "We should bring up children not to want to belong, not to lean on others, even on the members of their own family. What we should educate for is independence—independence of thought, of action, of character."

This view characterizes a new attitude in education today, and a counter-tendency to Pitcher's "all-American model": a growing respect for the value of individuality. Consonant with the emphasis on intellectual excellence for all, attention is being devoted to the problem of giving every student the education he needs to develop his capacities to the fullest, whether he be bright, slow or average. It is no longer considered undemocratic to acknowledge that there *are* individual differences and individual needs.

Both Horn and Silberman reiterate, in their different ways, the fact that education is coming to recognize that its primary task is to teach the student to think for himself, not to accumulate facts. Horn points out that the specific content of schooling is not so important as the habits of learning which the student acquires, and that learning is a life-long process which is imperative if the solutions to critical world problems are to be found. Silberman also emphasizes that the latest innovations in curriculum building take the form of courses that do not seek to train young minds through reference to authority, but rather to lead students to think like scientists or mathematicians—or perhaps like philosophers.

Along with the changing attitudes toward teaching goals, Silberman reports another important change: a reorientation of educational research in psychology. For over half a century educational psychologists have neglected the question of what and how much children can learn, and have addressed themselves to the measurement of aptitude and achievement and the study of motivation. Such books as Bruner's *The Process of Education* now emphasize the importance of giving students an understanding of fundamental structure, rather than stressing the accumulation of facts. (May we here refer the reader to Dr. Gattegno's article in MAIN CURRENTS for March-April, 1961, and his appropriate comments on the multi-valent thinking of children?) It is being shown increasingly that even young children of average intelligence can proceed much more rapidly and grasp far more difficult subjects than was heretofore believed possible. Therefore, in consonance with the intellectual aims of present-day education, Silberman writes, it is now held that "the basic ideas of science and mathematics and the basic themes of literature and history should form the heart of the curriculum from the elementary grades on. The progression in each field should resemble a widening spiral, in which students continually expand their knowledge of the *basic concepts* by learning to use them in more and more complex and sophisticated ways. . . ." (Italics added.)

It is evident that a real grasp of basic concepts will make it possible for the student to understand new situations, events and facts as they confront him, flexibly and creatively. They will also supply the structure and form which he needs to face the constant change and flux of our world, and counteract its disintegrating forces.

This recognition of the importance of basic concepts and principles is an outstanding achievement, if it be implemented. In itself, as a means to integrate the fabric of knowledge and present the child with a coherent world view, it can become the foundation to support other values which Horn suggests are the objectives of higher education. Thus aesthetic sensitivity is to be developed through appreciation of beauty in its manifold forms, and intellectual excellence, if it is to be of real social benefit, must be infused with moral and spiritual values. The moral value Horn equates to integrity; the spiritual to love.

Thus the goal of education in the broadest sense is to establish in each individual a sense of the validity of the enduring values: truth, beauty, integrity, love. In order to meet this challenge, experimentation and innovation are not enough. "To make this contribution," Horn writes, "teachers themselves must be committed to these enduring values and demonstrate them not just by what they say, but by what they do in their own lives." This does indeed presuppose a transformation of our national ethos, away from what Sorokin has called sensate values. Principles and concepts, the teaching of ethical values, must be fortified by empirical evidence of their truth. —*E. B. Sellon*

NEWS AND NOTES

We now resume a continuation of the review of points discussed by the present writer during a tour of Indian Universities. (By mistake the list in our March-April issue omitted mention of Roorkee University and A. C. College of Technology; and Karnatak University was referred to by the name of its location, Dharwar, in Mysore State.) The remarks which follow about the two types of scientific method were written with Indian readers most particularly in mind. This may give them a touch of freshness for our subscribers in the West.

Hypothetical and Measurement Sciences

BY far the larger part of science, in terms of sheer bulk, belongs to a category which for present purposes needs only cursory notice. In any case it is a very mixed bag, and hence difficult to describe adequately except at a length unsuited to this review. In order to have a term by which to refer to it we shall speak of it summarily and rather loosely as inductive science, meaning by this any or all kinds of systematized knowledge which is derived primarily by generalizing from sense data.

Psychologically speaking, what is important here is the fact that human beings are endowed by their very nature and circumstances in such a way that they must classify what they experience. It is impossible to utter a substantive word without implying or employing the idea of the group to which the thing, creature, process or sensed experience belongs. Any blue means blueness. The one is perceived, but the other is imageless. No one has even seen or recalled blueness, but only some particular blue. In this very elementary sense every human being is a knower, or scientist. He simply cannot avoid taxonomy. Now and then super-scientists deny this. It was, I believe, Spencer and Gillen who claimed years ago that the original Australians had individual names for great numbers of ants, but none for the ants as a class. Even if this were so, it does not follow that the proto-Australians were incapable of thinking of ants, as a class. Certainly they did not confuse ants with kangaroos or wombats, in practice. Similar naivete is attributed to the French. It has been said that they are an unfortunate and perhaps undeveloped people—though, of course, above the stone-age men—who have no word for home.

This matter of the conceptualizing or classificatory nature of the human mind is of basic importance, and especially the classification of new experiences. For a scientific development may begin with an accident. The classical known case was Becquerel's discovery of radiation. If the photograph which he took by sheer chance had never been explained—that is to say, related to other experiences systematically (optics, photography, etc.)—then it would not have been part of science in any proper sense of that word.

Man, then, is by nature a scientific or classifying creature. In the very center of his being is a systematizing organ which may be called mind in the sense of *manas*: hence man. Thus endowed he observes, systematizes, crystallizes meanings into words, struggles for new meanings against the old ones, coins and borrows new words, and finally has taken to a variety of devices to measure and to calculate what ordinary language prevents him from organizing, just as he has taken to music, gesture, dance, poetry, drama and other media to try to state those rich inward universals that are part of his true being.

As said above, sense-born science can hardly be briefly described, but one feature of it requires precise notice. At some stage in the development of some topic it becomes possible to state a generalization from the data in one brief, sharply focussed, even mathematically expressed generalization, called an hypothesis. The idea of evolution is one such idea. It is supported by so many

facts that nearly everyone believes it to be true. Indeed many people even believe that Darwin's particular formulation of it is the final truth. But, of course, this latter is a serious mistake.

The hypothesis will here be restricted to an exact generalization from data, which allows of prediction, and which if confirmed by many observations becomes a dependable bit of public knowledge. In this form observational, descriptive, measurement, experimental, statistical and similar sciences can sometimes be given a remarkable authority. Their utility is well known, and indeed nearly all scientific thought is initially approximated in this fashion.

To all of this the term inductive science may be applied. It is still far and away the truest characterization of the sciences of botany, zoology, physical anthropology, sociology, and so on, which (as Northrop points out) are still in the natural history category.

It is necessary to be clear on the point that many of the direct measurement sciences are fundamentally inductive. Measurement is a means of giving added precision to sense observation, and a device which allows us to convert some aspects of sense observations into a form which permits the mind to get to work, temporarily freed of extraneous data, upon calculation. In itself calculation is pure thought. That is to say, it is classification, pure and simple, according to rules of not only of the mind's own *making,* but in accord with rules which arise from the rational mind's own *character,* as will be exemplified in due course by the case of William Rowan Hamilton. Commutative and distributive rules, obedience to and use of absolutes (such as equality or zero), are some instances of the workings of the mind. However, when the point of departure has been measurement, the process is still bound to the materials furnished by the senses, and thus we are obliged to say that the resulting knowledge has—as working and empirical science—an inductive anchorage.

If the research and development program herein being identified is to be effective it is necessary to realize that there is a kind of science, entirely different from all other by reason of the fact that it does not make its effective start with materials derived from sense impressions, but instead takes off from the mind world. Yet it ends up with empirical proof. In fact this, the deductive-exact type of science, is not only empirically anchored in the world of experience, it actually affords the most exact, durable, and penetrating knowledge of that world.

So intermixed are the two types of science in many cases where both are present that the sharp differentiation which is possible between them is not ready at hand. The gravitation force field, for example, is a topic upon which a series of geniuses have worked in various ways over the centuries; among them the names of Galileo, Newton, Laplace, Einstein, and Minkowski are justly celebrated. What little we know of gravitation today is due to attacks made upon it from various angles, and by diversified means. Terminology is exact for operational purposes, but it is seen to be loose when it is employed for philosophical purposes. The difference between an hypothesis (derived from sense data) and a postulate (seized upon by the mind in some fashion not yet clear) is by no means as sharp as it should be.

This state of affairs provides the starting point for the proposed research.

The Point Where the Research Can Start

IN this review we have now arrived at the point at which, in the actual research program, the proposed study will make its effective start. The questions at issue include these: Which major successes in science have employed the deductive method? What precisely is that method, i.e., epistemology, and what gives it unique status? Does this method—and do its triumphs—provide more fundamental and more enduring knowledge of nature than any other? Since the epistemology discloses a feature of the mind which enables it to perform as a mind and not as a sensory system, and yet to demonstrate its reach into reality, is some basic potential implied for man as artist, and as a moral force, no less realistic? If so, what is the nature of the postulate in these cases, and what is the nature of the structuring? Are not the means for the discovery of demonstrable reality one and the same for science, art, and the good? Being natural to us, but not fully recognized, may they not tend to be destroyed in education instead of conserved and exercised in their wholeness?

Until the whole corpus and anatomy of deductive-exact science has been documented in authoritative lay terms these questions cannot be profitably put, for they can only lead to wrangling, an error (*jalapa*) explicitly condemned in the Hindu logic, although probably not unknown in Indian Universities of the Western type.

A peculiar form of talent is displayed in successful creative endeavors of this unique kind, and the list of its known possessors is short. On it occur certainly such men as Isaac Newton, Auguste Bravais, James Clerk Maxwell, Max Planck and Albert Einstein. The basic procedure which their greatest achievements reveal is the same in each instance, but the complexity of the domain in some cases may disguise the pattern. All this should be cleared up as the proposed re-examination of the subject proceeds with case after case.

For present purposes it is only necessary to describe and exemplify the method briefly, discussing a few elements in the instance of Newton and describing what is probably the simplest and

most elegant of all, that of Bravais. (Einstein examined the philosophical status of pure thought in his contribution to the volume devoted to Bertrand Russell in *The Library of Living Philosophers.)*

In brief, the deductive method, properly so-called, begins not with hypothetical generalizations, but from a pure insight, called a postulate. (Newton clearly understood what he was doing, for he said of himself: *Hypotheses non fingo.)* Consider his proposition that a body at rest or in motion will continue in that state until acted upon by a force from outside. The truth of this proposition can never be demonstrated, for obviously no one will ever see a single body quite solitary in all space since the observer would also be there; and even if he were himself the solitary body in question—resting or moving (by postulation) in a total vacuum—he would not know by external (i.e., positive science) evidence whether his state were rest or motion, or now rest and now motion. Yet the mind accepts the truth of the proposal, which is wholly ideal and physically unrealizable.

Starting then with pure thought, Newton next confronted the problem of structuring his postulates. (This is the process which gives the name deduction to the method.) To structure means to state exhaustively the logical consequences of the postulates. In general such structuring is done mathematically and in Newton's case the mathematics had to be and were invented by him: *fluxions,* part of what is now called the infinitesimal calculus.

The vital part in all this is that the whole operation described has been an exercise of two aspects of the mind: (1) The flash or flashes of insight (or ideal propositions) which have the curious feature that they appear to be true and are to be taken thus in simply piety; (2) The logical exhaustion of the postulates. It ends up at last with (3) predictions of nature's behavior, often made in numerical quantities far more precise than subsequent measurements can equal, hence the designation "exact science." Finally (4) the predictions are tested by the senses to complete the program.

Such geniuses in this kind of scientific work as have discussed the psychological aspect of their successes recognize the uniqueness of the postulational insight and its difference from the intellectual labor of the logical structuring. As there are few such geniuses and their experience is subjective, glib description of the decisive "moment of truth" as "the ripening of the unconscious" merely clouds the issue. It is interesting to note that Indian psychology recognizes an element in higher reason *(manas* as *sat)* which is able to signal suddenly to the mind that one, among the mind's reflections, is true. This element is styled *buddhi,* and is in the individual the same as *Mahat* in the cosmos, according to the *Samkhya.*

What is at once the simplest, most elegant, and probably the most successful of all known instances of deductive structuring is that of Bravais, who provided the basic morphological taxonomy of an entire department of science, inorganic crystallography, single handed, and published it in a small volume in 1850 (not issued in English until 1950). Thus, nearly a half century before the X-ray was developed, he provided precise knowledge of the internal symmetries causative of the external forms of crystals. Tens of thousands of different crystals are known to occur in nature, and since every crystallizable pure chemical substance appears only in the form appropriate to it, countless thousands more can be prepared in laboratories.

Bravais' assumptions could hardly be more simple. For the purposes in hand, space is homogeneous, Euclidean, and three-dimensional. The question is: how many basic patterns can be determined in it such that any one pattern can be repeated so as to fill all space with *absolute* regularity? The answer often comes as a surprise: fourteen. These fourteen so-called space lattices turn out to be the lattice groups which systematize the whole of this department of science. This example demonstrates the penetration, the power, and the durable authority of deductive-exact science.

It is high time to examine and clarify every domain won by this kind of knowledge and to make its psychological status and its metaphysical power clear. By its means we get at the laws of nature, and begin to see the sublimity of her orders. What is more, we find them to be derivable from the Continuum, the non-material and super-sensible reality. We get some idea of what man is, at his creative best, that he can enter into, and use the noumenal world. That today he does this for destruction should only move us to quicken the inquiry. —*F. L. Kunz*

VISITS by the above writer to a few friends, old and new, teaching in Leydon, Oxford and Cambridge Universities were included in the recent journeyings. Rethinking of the curriculum in schools and colleges in Britain is going ahead, along with a considerable building program, at all levels. The issue of the Cambridge *Reporter* for June 8, 1960 supplies the report of the General Board on courses combining arts and sciences. It reveals, naturally, concern over the same unsolved difficulty which, in the United States, led to the compromise called general education when, during the last two decades, the opportunity to re-integrate the classical cultural insights with contemporary scientific philosophy of nature was not seized. But the political system in Britain—and the Island consciousness—with its Royal Commissions and flexible Parliamentary procedures

once more displays its versatility and liveliness.

Under Lord Robbins a Committee on Higher Education is at work on the *principles* for long-term development of universities, colleges for advanced technology, and teachers colleges. Correspondence should be addressed to Mr. P. S. Ross, Secretary, Committee on Higher Education, Old County Hall, Westminster, London S. W., 1. Suggestions have been invited from all quarters. The people of Great Britain realize that they are engaged in a social revolution on a scale more vast than that which they went through a hundred years ago. Here, again, their institutions and their location and history are invaluable. In England, for example, the concentration of newspaper and publishing power and the dismal and decadent quality of some newspapers led to reaction and inquiry in Parliament. Thus the country is alerted to deficiencies and changes for which the correctives may be provided only in education, if freedom is to be sustained but decency also be defended. The attitude is, in effect, more or less the reverse of that in the United States, where there has long been proper concern to improve the schools, but not in terms which suggest awareness that there is a worldwide social-economic revolution in progress.

The Institute for the Study of Mental Images, a non-profit research organization under the direction of C. C. L. Gregory and Anita Kohsen, has recently announced the publication of a new journal, *Cosmos*.

Cosmos is described as a monthly discussion of cosmology in its widest aspects, comprising new methods and new models for re-shaping both Western and Eastern views so as to do violence neither to the objectivity of science nor to the subjectivity of human experience. It is directed towards the beginning of a new science, psychophysical cosmology, in the hope that such a journal will permit its assimilation, criticism and development to proceed slowly and methodically. Subscription is $2.50 a year. Inquiries may be directed to I.S.M.I., Church Crookham, Hampshire, England, or to Peter Bandtlow, 137 Lindenwood Road, Staten Island 8, N. Y.

In the January-February issue of MAIN CURRENTS there appeared a review of Adrian van Kaam's lecture, "The Third Force in European Psychology," at the end of which mention was made of two new journals in the field of psychology, psychotherapy and psychiatry. These were the forthcoming *Journal of Humanistic Psychology*, and the *Journal of Existential Psychology*, edited by Jordan M. Scher and publisher by Libra Publishers, 445 West 23rd Street, New York 11, N. Y.

This latter journal is not to be confused with the *Review of Existential Psychology and Psychiatry*, edited by Dr. van Kaam and published by the Association of Existential Psychology and Psychiatry, whose first issue was dated Winter 1961. The *Review*, whose Associate Editors are Henry Elkin and Rollo May, is designed specifically "to advance the understanding of human existence by encouraging the dialogue between the behavioral sciences and the phenomenology of man, and to point toward the integration of the theories and data of psychology and psychiatry into a science of man based on increasing knowledge of his essential nature."

Inquiries should be addressed to the *Review* c/o Duquesne Univ., Dept. 135, Pittsburgh 19, Pa.

The Annual Meeting of The Society for the Scientific Study of Religion will be in Cambridge, Mass., October 27-28, 1961. Persons who wish to present reports of empirical research or other papers should send an abstract not to exceed 600 words by August 15th to Dr. Theodore W. Sprague, 13 Fulton Street, Cambridge 38, Mass.

REVIEWS

Flight Through Cosmos

DELICATELY, and with magical effect, Guy Murchie has evoked a strange state of mind uniting author and reader in his book, *Music of the Spheres* (Houghton Mifflin, Boston, 1961, 600 pp., index, $6.95). By revealing in his opening pages, and now and then reminding his readers quite casually that he is writing in a cosmonauts capsule in outer space, he gives to his account of science today a curious compound sense of both retrospect and immediacy. (To describe what he has done is almost as difficult as the doing.) He draws in the van Allen radiation belts, or one of the shifts of the earth on its axis (as much as ninety degrees, 700,000,000 B.C., he says) and anything and everything which he is musing upon (each item very accurately) with a touch of poesy entirely devoid of archness or mawkishness.

In his *Song of the Sky*, he was merely up in the terrestrial air, nothing at all for this chap. Now he and his readers hover over time, so to speak. (The book is subtitled: Space, time and matter—the great adventure of our age.) The achievement is brought off in part by dotting in deft professional diagrams and drawings (his own), no less aesthetic than the text, one or more on practically every page, with their explanations *in* them, not distractingly below.

His aim has not been a labored review of all that is known to be significant, as of now, and how it was found out by the rostered geniuses in every society, but quietly to notice just about everything and reflect upon it. The result is something that chattiness or a pretentious method and pompousness could never achieve, namely, fascination in the reader. Everything: that is the idea, in fact if not in effect.

There are forty pages of index, and a sampling and estimate show that there must be about 800 headings, by no means enough to give certainty that all is being attended to, especially since many entries are half-biographical. But there may be as many as a hundred page references under one alphabetized topic, such as astronomers, plus perhaps fifty more on astronomy. In short, he comes back over and over to the great domains, nearly each time in a different context. Thus he scatters the bright jewels of hard data over a fine filigree texture of words, moods, and clear and easy exposition. Thus handled, something as complex as the spectral series, Lyman, Balmer, Paschen, Brackett and Pfund, is just as natural and as radiant as the Pleiades.

Murchie has now only one next domain to make available to the thousands of Book of the Month Club readers who benefitted from his *Song of the Sky*, and the many thousands who will be engrossed in this volume. From the upper terrestrial air he has gone, this time, to outer space. Next station, obviously, space-time itself. What he could do (if only he could get the right transportation) may be guessed from the main heading in the Index:

DIMENSION, unimaginable, 217, 599; in Principle of Similitude, 233-34; electrical charge as, 346; of a wave, 368; interdimensional mechanism of wave, 369-71, illus., 371; flexible, of distance, 526-27, illus., 527; flexible, of time, 527; the fourth, 548-50; illus., 548; many, of curved continuum, illus., 578-81. *See also* Size, Scale, Magnitude, Shape, Distance.

(In few books are the indexes almost as fascinating as the text!)

Anyhow, Murchie, give me a ring when you get up over down around through hyperspace, and I shall certainly come along and brood over it with you. Meantime, many thanks for all this Music.

—F. L. Kunz

Erich Fromm —

A book written as commentary on the ideas of another man suffers from certain inescapable problems: (1) It is almost impossible to see the author's own thought as a structure in itself. He is hopelessly intertwined in his subject. (2) With such a focus on one person, he is likely to slip into the habit either of considering his subject as an ally, or as an adversary, or (in trying to be fair) criticizing part of the time and commending the rest of the time.

Escape from Authority "The Perspectives of Erich Fromm" by John H. Schaar (Basic Books, N. Y., 1961, 324 pp., references, index, $6.50) falls into the latter category. I mean by this that, although he both highly praises and deeply criticizes the work of Erich Fromm, at the end of the book the impression is given that certain of his criticisms were more arbitrary than he might have thought; in another mood he might have taken a different viewpoint, or, rather, conceded more latitude in the possible interpretation of Fromm's writings.

In spite of the foregoing, I feel that *Escape from Authority* is an important commentary from a man who has the happy faculty of being able to build on the best elements of another man's thought without falling into the same traps. Schaar's brilliant analytical ability frequently enables him to point out with gentle irony widespread fallacies and oversights not only in Fromm's thought but in that of a surprisingly motley collection of others, from Marx to the Zen Buddhists:

". . . Fromm, along with a lost of other writers, is disturbed by the prevalence of conformity in our society. I am not concerned with the question of how widespread conformity is, or whether it is spreading, but I am concerned with what seems to me a radical and widespread error of thought, an error shared by Fromm, on this matter. What makes conformity seem such a danger is not conformity itself, not the mere fact of conformity, but the fact that what we conform to seems so banal, so trivial, so humanly unappealing. That this is the case will appear if one reflects for a moment on the simple truth that no one objects to conformity with others *in a good cause* . . . When the 'problem' of conformity is stated this way, it becomes evident that it is really an expression of a deeper problem, the lack of any positive and compelling visions of the good to fill the emptiness of modern life . . ."

Though Schaar is a Professor of Political Science, he clearly recognizes the limitations of that subject. As a matter of fact, one of his basic criticisms is that Fromm believes creation of the Good Society is the key to the solution of man's problems. Schaar, while not denying the need for social improvement, sees man's problem as far more delicate and complex. In his conclusions, he says:

". . . Out of the tension between man's capacity for a self-transcending freedom and the essential limitations of his creatureliness come the desire and anxiety which urge him to pride and self-inflation. (I of course mean pride here in the theological sense: 'And the Lord God said, Behold, the man is become as one of us, to know good and evil . . .') This pride enlists all man's biological talents and energies in its cause and bends other men and social institutions to its purposes, but is itself the product neither of biological drives, as Freud would have us believe, nor of social institutions, as Fromm would have us believe. It comes from the self in the existential situation."

In essence Schaar is calling for a recognition of man's complexities lest we be lured into various oversimplified utopias. He rightly criticizes naive universalism: ". . . Fromm believes that estrangement (which he usually calls alienation) can be overcome in a new world. He will not see that every man, almost to the extent that he is an authentic and integral person, is lonely."

Like any writer of some depth, Schaar contradicts himself with ease and jumps back and forth with agility over the fences which separate various "schools of thought." This makes him refreshing as well as worth reading. I hope in his next book, rather than presenting his views as a rebuttal, Professor Schaar will "speak for yourself, John."

—Marifrances Orser

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